Chapter 8 Exporting NASIS Data

Overview of Exports

NASIS provides two types of export files: a SSURGO Version 2 format and the FOCS format. The SSURGO Version 2 format replaces both the old SSURGO format and the NASIS format that existed in NASIS 4.0. The new format allows you to tailor the data selected to include items not found in traditional SSURGO exports. However, whether the output is strictly SSURGO data or includes other data (such as additional mapunits) the file format is the official SSURGO format. The FOCS format manipulates NASIS data to deliver data in the older FOCS formats.

All exports require that you build a selected set. In the case of the SSURGO format export you can simply load the legend(s) for the soil survey you want to export. Then, you can generate the export for the survey by completing a single dialog screen that enables NASIS to select the mapunits, data mapunits, and components that you want to export from the permanent tables. Or, if you prefer you can load those tables and export data from your selected set. Because the FOCS format differs from the NASIS data structure, these exports can require extensive data manipulation and error checking prior to export.

This lesson discusses each of the export types.

Generating a SSURGO Format Export

Your export data needs to be complete and carefully selected to obtain the results you expect.

This lesson presents information somewhat differently than other lessons, because the tutorial database does not permit you to save data. Running a SSURGO format export requires that data be written to permanent tables in the NASIS database. Therefore, you can select data for export and view data about previous exports, but you cannot generate an export file while running the tutorial.

You begin a SSURGO format export by identifying the soil survey or surveys for which you want to export data. (The export can be time-consuming and resource-intensive. If you need data for more than two or three surveys, perform multiple exports or contact the NSSC Hotline for assistance.) In NASIS, you will run a query to load the legend or legends of the soil surveys you want to export. From that point, you can either select mapunits, data mapunits and components from the permanent tables by completing the export dialog, or you can build and export a selected set. At a minimum, you must load the legend(s) into the selected set prior to running either type of export.

As you complete the export dialog, you can also specify interpretations to apply to the export data. The interpretitve results are included with the export. The interpretations can be from the national or local databases, or any combination of these. Only interpretive ratings generated within NASIS are included in the export. No legacy interpretations are included.

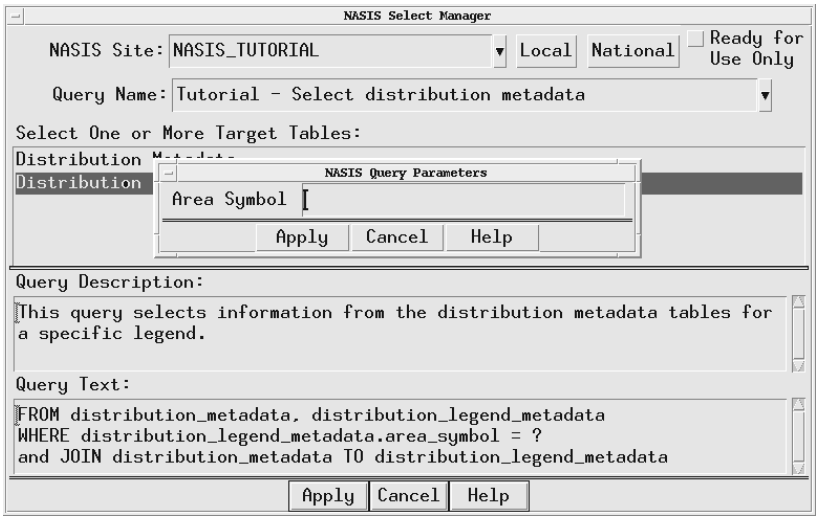
When the export runs, information about the export selections and the data selected is created and stored in a set of five tables. The tables are part of a NASIS object, the distribution metadata object. The root table is *Distribution Metadata* and describes the criteria used to export the data. Children of this table include *the Distribution Text Metadata* table, the *Distribution Legend Metadata* table that describes the soil survey areas exported and the *Distribution Interp Metadata* table that describes the interpretations generated for and included with an export. The *Distribution Legend Metadata* table has one child table, the *Distribution Mapunit Metadata* table that describes the exported map units. The exported components are described in the *Distribution Component Metadata* table that is a child of the *Distribution Mapunit Metadata* table.

In the course of working on a soil survey, you may want to export and view data at different points. The exports created at different points are analogous to "snapshots" of the same view taken on different days, if you use the same legends/tables and selection criteria. The distribution metadata tables allow you to identify the selection criteria used for previous exports. By loading the same data and selecting the same criteria as used in a previous export, you can obtain a new snapshot of the same view.

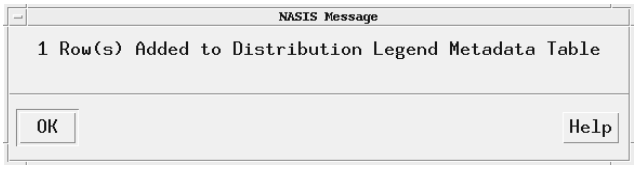
Loading distribution metadata

The export process and data can best be understood by viewing the results of a previous export. From the distribution metadata tables, you can see the selection choices that can be used for export and the type of NASIS data exported.

1. On the **File** menu, choose **New**.
2. On the **File** menu, choose **Select**.
3. On the **Select Manager,** choose the **Tutorial – Select distribution metadata** query.
4. Highlight the **Distribution Legend Metadata** tables.
5. Click **Apply**.
6. Enter **TD609** at the prompt.



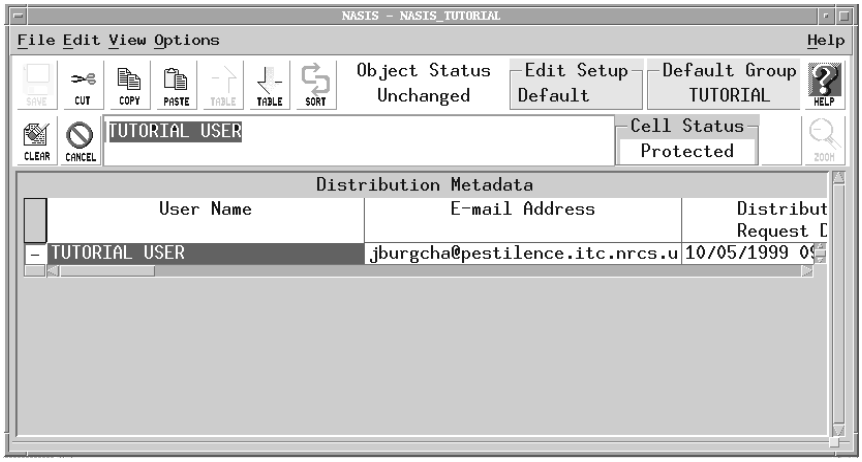
7. Click **Apply**. A message will be displayed indicating that one record has been added to the Distribution Legend Metadata table. Click **OK**.



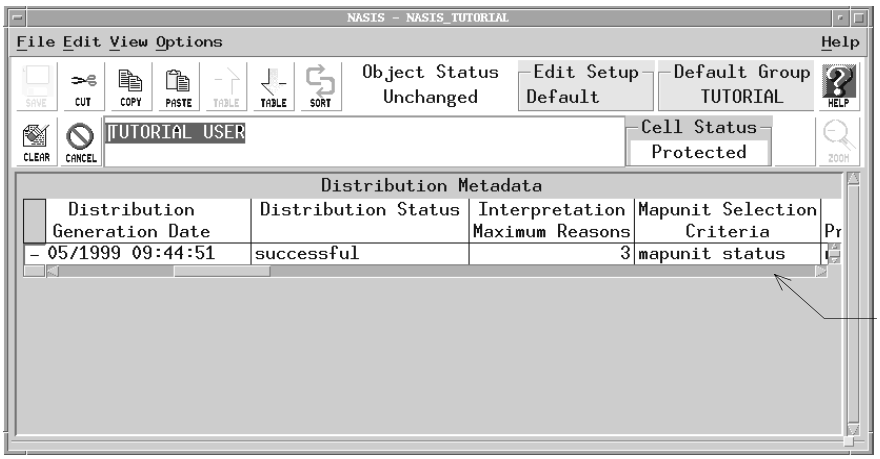
8. Click **Cancel** to close the Select Manager.

Viewing distribution metadata

1. On the **View** menu, click **Distributions**.
2. Click **Distribution Metadata**.
3. The table contains one record. The Distribution Metadata table contains a record for each time that a NASIS format export has been run for the selected legends.



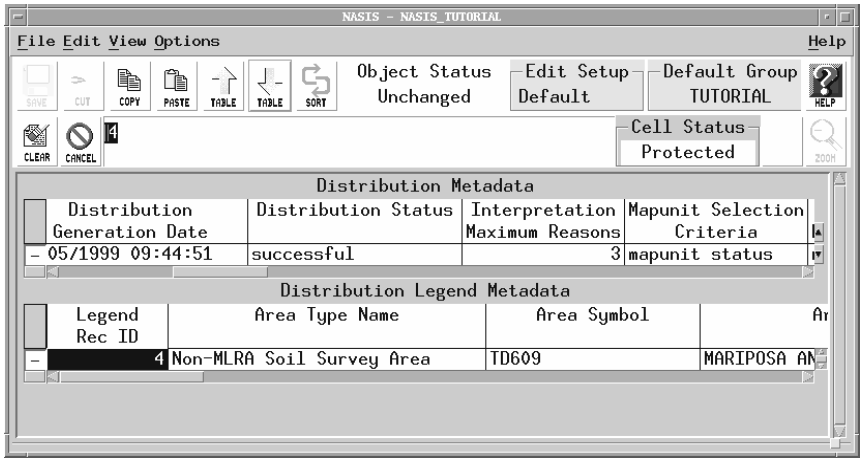
4. Use the scroll bar below the table to scroll to the right until the Distribution Status is displayed in the leftmost position. The columns indicate whether the selected set or mapunit status was used to select data for export. Blank columns represent status selections not used by the export.



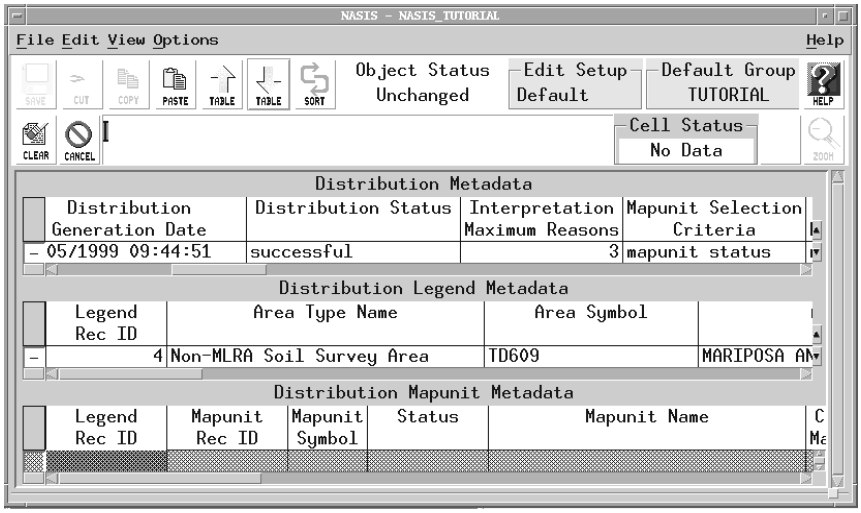
Note: The NASIS export function writes data to these tables as the export progresses. This means that the data reflects various points throughout the process. The record shown completed successfully. When you run an export in NASIS the distribution status may be in progress, successful, partially successful, or not successful. Partial success can occur if the user specifies a selected set but one or more entities in the selected set data was not available at the time of the download (for example, if a component or mapunit was deleted).

Note: As you scroll through the set, consider how you can use this information for successive exports of the same data. The distribution metadata table in the screen indicates that mapunit status was used to select mapunits for export. Using selection criteria to choose mapunits, data mapunits and components rather than using the selected set makes it easier to create a new export (snapshot) based on the same criteria. When selected set is used, you must check the distribution metadata subtables to identify the mapunits and components exported.

5. Click **Down** table to view other criteria and identify data selected.

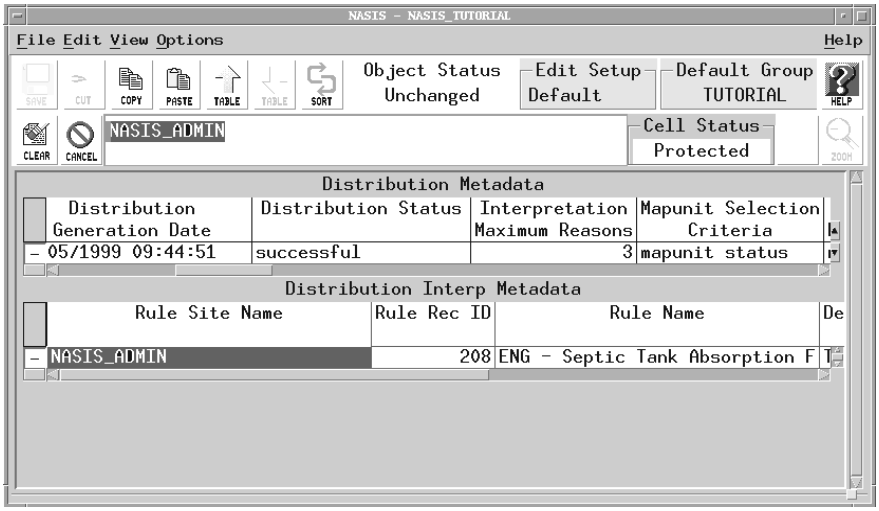


6. Click **View**, **Distributions**, and then **Distribution Mapunit Metadata**.



Note: The mapunit selection criteria specified only the mapunit correlated for the export. Legend TD609 does not have any correlated mapunits, therefore the distribution mapunit and distribution component tables contain no data. The exported file also contains no mapunits or components. When large datasets with interpretations are exported, the export process can take a long time. It can be frustrating to discover that your export file does not contain the information you expected. You may want to load items into the selected set and check data currency and completeness prior to exporting data, even if you intend to select items from the permanent tables.

7. On the **View** menu, click **Distributions**, then click **Distribution Interp Metadata**.



Note: Interpretations are generated and the results stored if you select at least one interpretation. The names of all interpretations used are listed in the *Distribution Interp Metadata* table for the export. Initially, the **Most Recent Rule Component When Last Updated** column is the most recent When Last Updated value for all entities (rules, evaluations, properties) making up the interpretation.

Selecting Records for the New SSURGO Format

The SSURGO Version 2 export format replaces both the SSURGO and NASIS Export formats that were in version 4.1. You can select records from permanent database tables or, if you prefer, you can build a selected set for export. If you choose to select records from permanent tables, you can specify most criteria directly in the New SSURGO Export Manager dialog. Using permanent tables, you can include mapunits and data mapunits according to their status without loading them into the selected set. In most cases, this allows you enough control to select the records you want. The selected set allows you more control over the records selected for export.

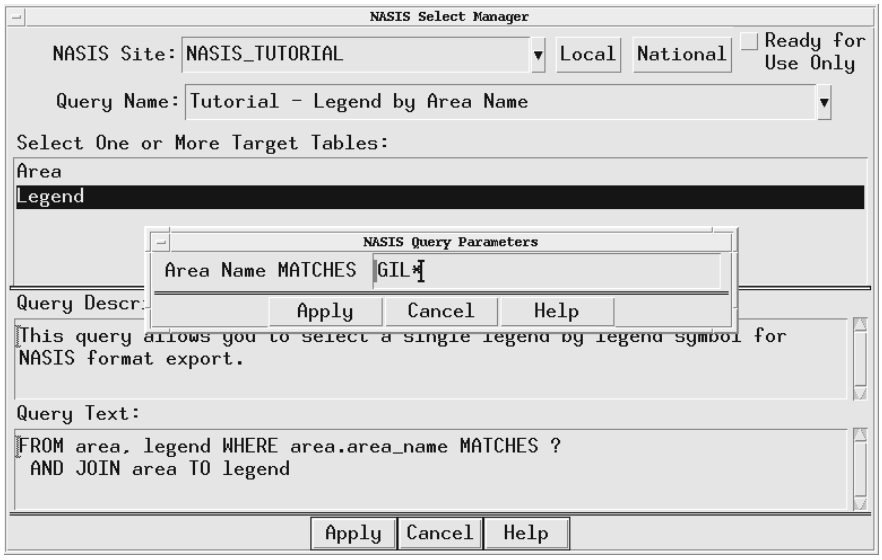
IMPORTANT

The NASIS tutorial database is read-only. Since the SSURGO format export writes information to the Distribution Metadata tables in the database, YOU CANNOT RUN A NEW SSURGO FORMAT EXPORT FROM THE TUTORIAL DATABASE.

At least one legend must be loaded in the selected set for the New SSURGO export option to be available on the File/Export menu. Therefore, this tutorial lesson contains a combination of procedures you must carry out combined with figures illustrating what you would see if a NASIS export could be run from the tutorial.

To avoid confusion, steps you can execute are presented in numbered lists. Screen captures within procedures do not contain captions. Procedures you cannot perform in the tutorial database are described in unnumbered paragraphs. Screens you do not see while running the tutorial are presented as figures with captions.

1. Clear the selected set by selecting **File** menu and choosing **New**. If you receive the data modified message, click **OK.**
2. **On** the **File** menu, choose **Select**.
3. On the **Select Manager**, choose the **Tutorial – Legend by Area Name** query.
4. Click **Legend** in the Select area.
5. Read the instructions in the **Query Description**.
   Note: FOCS exports require that you select and load all tables. The new SSURGO export format can select from permanent database tables. Therefore, you only needed to select the Legend table for this example. The legend table must be loaded for all exports. Other tables may be used depending on the selection criteria used.
6. Click **Apply**.
7. Type **GIL*** in the Area Name prompt.



8. Click **Apply**. The NASIS message will indicate that 1 row was added to the Legend table. Click **OK.**
9. Click **Cancel** to close the Select Manager.

   Note: Pay attention to the number of rows added. If you used the query to load a survey that had both a project and an out-of-date legend, it would load both into the selected set and export data from both. Unless that were your intent, on an actual export you would probably want to use a query that restricted selections by survey status.

Selecting SSURGO Export Criteria

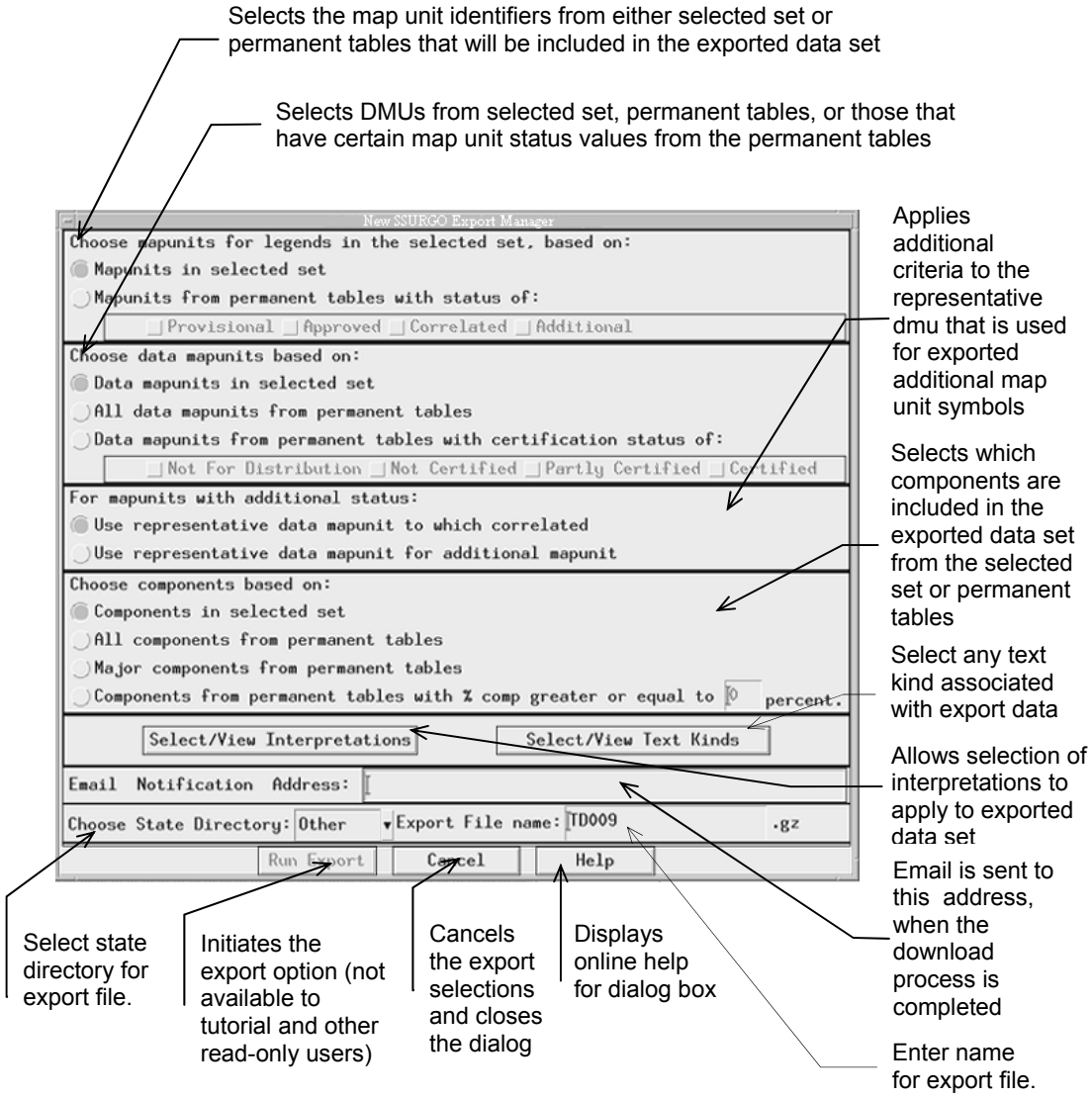
Now that the Gilpin legend has been loaded, you can select the mapunits and data mapunits from the export dialog box. The dialog box is used regardless whether you are going to export from the selected set or from the permanent tables.

1. Select **File**, then click **Export**.
2. Select **New SSURGO Format.**

   Note: When the dialog is displayed, it will contain selections. If the survey was previously exported, it will contain the most recent download criteria used for the previous export of the same legend.

   When re-exporting a legend, the default criteria values are set using the settings used the last time this particular legend was exported. If there are multiple legends in the current export that were previously exported in separate downloads they could have different criteria settings. In this case the program will warn of a possible conflict and use one of the stored criteria settings for defaults. It is up to the user to determine if the default criteria settings are what they want to use for the current report. The selected criteria will be applied to all legends selected. If a legend has not been previously exported, the application default values are used.

   Export selection criteria is available for map units, additional data map units, components, and interpretations. In addition there is criteria for interpretation generation.



3. From the two choices for mapunits, click the button preceding **Mapunits from permanent tables with status of:**

   Note: When an item is selected, the circle of the button appears darkened. The choices below **Mapunits from permanent tables with status of:** are now available.

4. Click the selection area preceding **Approved, Correlated,** and **Additional** to choose the status of selected mapunits.
   Note: The Export Dialog allows you to make multiple selections for the different mapunits and data mapunits. When multiple selections are allowed, boxes precede each selection rather than round buttons.
   Selecting all mapunit statuses would result in the selection of all mapunits from permanent tables since the mapunit is guaranteed to be one of the four selections (it is always a defined or non-null value). On the other hand, the data mapunit

certification status value could be undefined or null so the selection a all DMU certification status values would not necessarily select all DMUs from the permanent tables. You must use the All data mapunits from permanent tables option to include mapunits that do not have any certification status (null).

5. Click the box preceding **Additional** to de-select it.

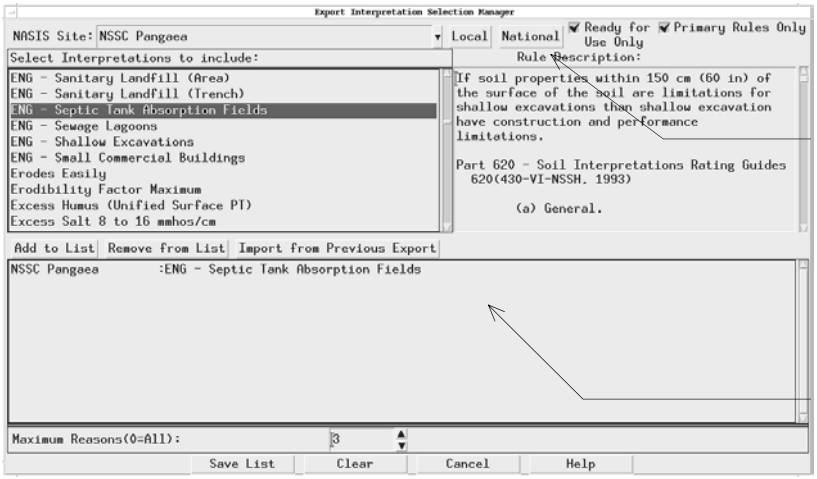
   Note: The area titled **For mapunits with additional status** is now grayed out (unavailable), because Additional mapunits are no longer marked for inclusion.

6. Continue marking selections for DMUs and components.

   Note: The component selections allow selection of components by percent of composition. Percent composition is not always an indicator of component significance. For example, in the case of hydric soils using percent of composition may eliminate important components. Use this option with caution.

   Note: At this point, you could run the export without interpretations. However, in most instances you will choose interpretations. (Since this is the tutorial database, you will not actually run the export and we will continue with the interpretation selection.)

7. Click **Select/View Interpretations**.



The list of interpretations is blank until you click National to display those in the National database

List defaults to the last list previously selected for this legend

8. Click **National**.

   Note: You can select any combination of interpretations from the local and national lists.

9. Highlight **ENG – Septic Tank Absorption Fields** from the **Select Interpretations to include** list.

   Note: Once the interpretations are selected and the export is run, it is done in background. Since the processing of interpretations can take several hours, it is recommended that the process be started late in the day.

10. Click **Add to List.**
11. Leave **Maximum Reasons** set to the default of 3.
12. Click **Save List**.

Note: Although the Save List button is active, no save is done until an export is run. In the tutorial, no save occurs.

13. Click **Cancel** to close the Interpretation Manager and return to the New SSURGO Export Manager.
14. Enter the e-mail address to which the export notification should be sent.

    Note: On an actual export, this is a required field. Be sure you enter the information accurately. The email notification you receive will indicate if the export completed successfully and where your export file is located.
15. Click **Cancel** to close the New SSURGO Export Manager dialog.

    This ends the hands-on portion of the NASIS export lesson. The remaining portion describes the actual export process, the user notification, and potential pitfalls you should be aware of when selecting data.

When an Export is Run

Once the export is started (when the Run Export is clicked in the Export dialog) the main export process runs as a background process separate from your NASIS session. This means you can continue to perform other NASIS tasks, exit NASIS, or even logoff your NASIS session without impacting the export process. If you are planning to export multiple surveys or a large survey, it is recommended that the export be initiated late in the day to run after hours. Try to choose low-impact times to run large exports.

At the point that the export button is clicked, all selection criteria are known.

Locating the NASIS Export File

You are sent notification of where your download results are stored. However, if the e-mail address you entered is incorrect, the notification will be misdirected. If that happens, you can still locate your export file. The download results are stored in state subdirectories. Users select their state directory and specify the file name, which is given a .gz extension. The location and filename are then included in an email notifying the user that the download has completed and where the data is located.

The NASIS data is written to ASCII pipe-delimited text files where there is one text file corresponding to each SSURGO format database table. These text files are in a Microsoft Access compatible format. These text files are packaged into a single file that is then compressed.

Note: Export files are large and can accumulate quickly. They are automatically deleted after 30 days. They can also be overwritten, if you use the same state directory and file name.

If you are creating the export file for a requestor, you are responsible for checking your results and notifying the requestor when the data is available. Transfer options include email, and storage media with postal net.

Checking the SSURGO Export Notification

The New SSURGO Export process sends e-mail to the user (this message is also stored at the target location) when the export is processed. Different e-mail systems

will vary slightly in terms of heading information, but the content format will be the same. Figure 8-1 shows a screen capture of an actual notification.

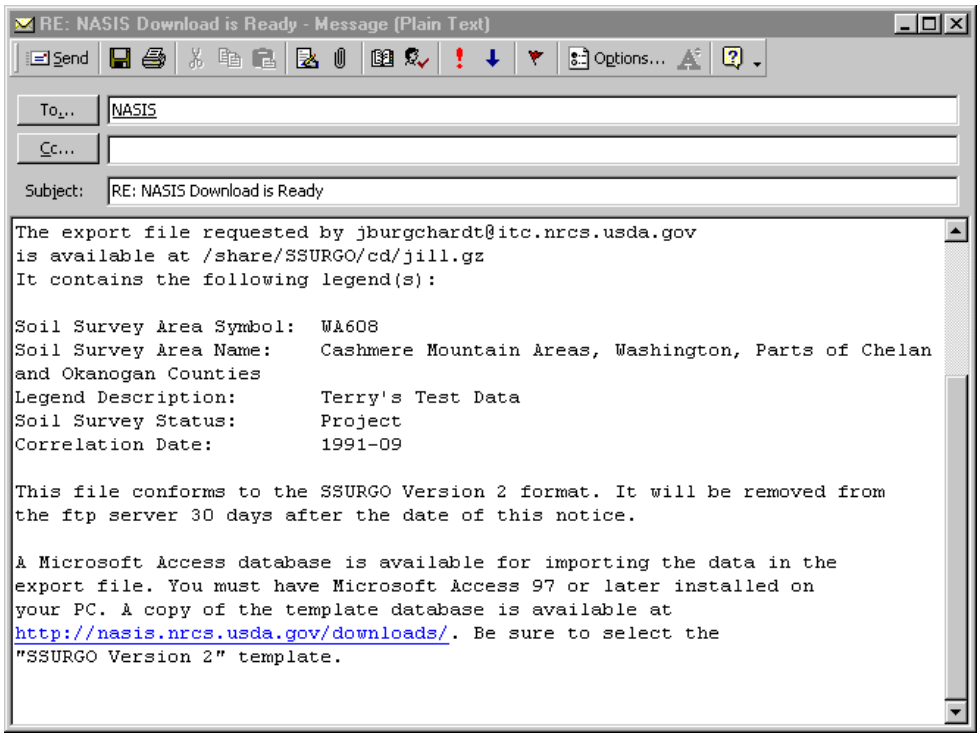


Figure 8-1. Sample SSURGO Export Format Notification

The format notification also contains information on how to download a copy of an Access template. Details about the Access template can be found in the Readme.doc file sent with the export.

NASIS SSURGO Export Errors

Processing errors

Errors generated during the SSURGO export process are displayed using an error message dialog and are also written to the NASIS error log file. In addition, an email message is sent to the user.

Avoiding data selection errors

Most data selection errors will not produce any processing errors. You must check your export to be sure it includes the data you expect to receive. Most errors are easily avoided by carefully selecting your data and understanding how the export chooses data to include.

Examining Export Data for Unexpected Results		
Unexpected Data Result	**Probable Cause**	**Solution**
Incomplete data in export file	Exporting from selected set when only legend was loaded	Use selection criteria or build a complete selected set
	Specifying selection criteria that has no matching data (such as correlated mapunits only when no correlation has been done)	Load and check data in selected set, even if selections are based on permanent tables. Change selection criteria or data as appropriate
Recent changes not reflected in exported data	Export done prior to saving data in the selected set.	Save data changes in selected set prior to running export
Deleted data included in export file	Export done prior to saving data in the selected set. The export process does not check row status.	Save data prior to export. De-select rows that should not be exported.
Multiple sets of data for same legend in export file when only one set expected	The legend was loaded without checking survey status. There may be project, out-of-date, or other status surveys in the dataset. **Tip:** This is easy to spot, because your e-mail notification will list an entry for each legend.	Reload the legend using a query that specifies survey status. Or, you can view the legend table and de-select the row(s) you do not want to include. **Note:** Temporarily marking the row as deleted will not work. The export process does not check row status.

Table 8-1. Examining Export Data for Unexpected Results

Selecting Records for FOCS Export

This scenario demonstrates how the selected set is used to determine which records should be exported.

1. Clear the selected set by selecting **File** menu and choosing **New**. If you receive the data modified message, click **OK**.
2. In the **File** menu, choose **Select**.
3. On the Select Manager, choose the **Tutorial – Area/Legend/DMU correlation for export** query.
4. Use the arrows beside the Query Text area to read the query instructions.

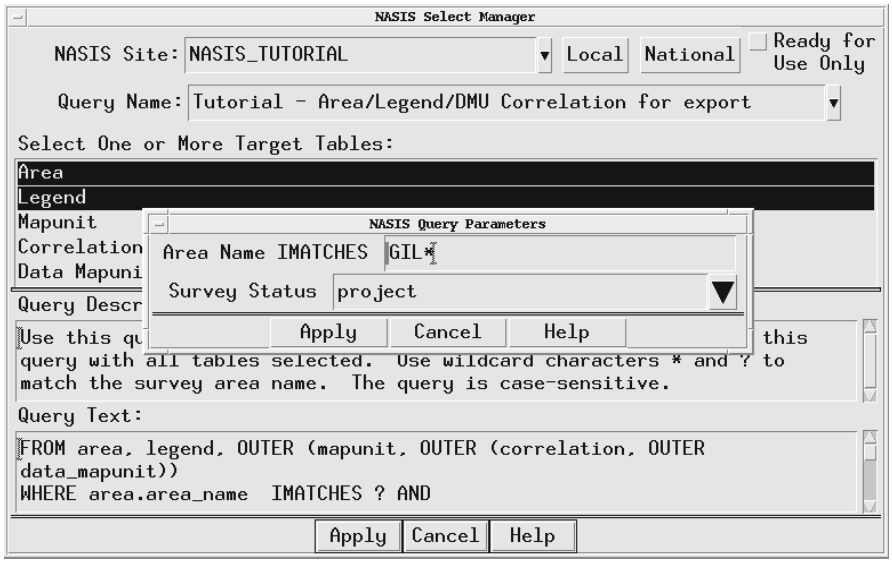
   Note the two lines that read:

   JOIN mapunit TO correlation AND

   JOIN correlation TO data_mapunit

   It is important that any query you use or write, or any selected set you build through load related, includes correlation to data mapunit data if you plan to export the data. Without this data, you will receive an error informing you that your selected set is incomplete.
5. Highlight both the Legend and Area target tables.

   Note: This exercise deliberately selects incorrect tables to demonstrate a no data condition. Normally you would highlight the Area and Correlation tables.
6. Click **Apply**.
7. At the Area Name prompt enter **GIL*.**
8. From survey status choices select **project**.



Note: In NASIS 3.1, the export function for FOCS did not include provisional

mapunits. The system was modified to allow export of any mapunits in your selected set to FOCS. If you wish to exclude provisional mapunits or any other type of mapunit, you need to either write a query that selects only those mapunits you wish to include, or you need to de-select rows you do not wish to export.

9. Click **Apply**. A message is displayed indicating one row was added to the Area table and one row was added to the Legend table.
10. Click **OK**, then click **Cancel** to exit the Select Manager.

Previewing FOCS Export Errors and Warnings

After building a selected set, you are ready to preview the export file. It is strongly recommended that you preview your errors and warnings. The export preview will provide you with a full list of any problems encountered. Using the problem list, you can make all of your corrections before building an export file. Going through the preview process is usually faster than correcting one or two errors each time you attempt to build an export file.

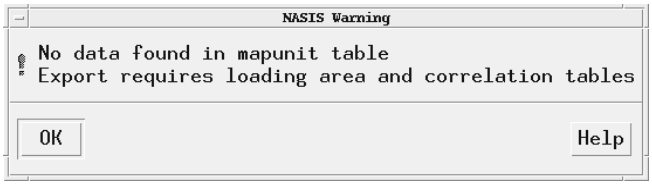
It is strongly recommended that you preview your errors and warnings. The export preview will provide you with a full list of any problems encountered. Using the problem list, you can make all of your corrections.

Note: Multiple users can run the Export facility simultaneously. However, the same login cannot run the Export facility simultaneously from two sessions.

To preview NASIS data download in the FOCS format:

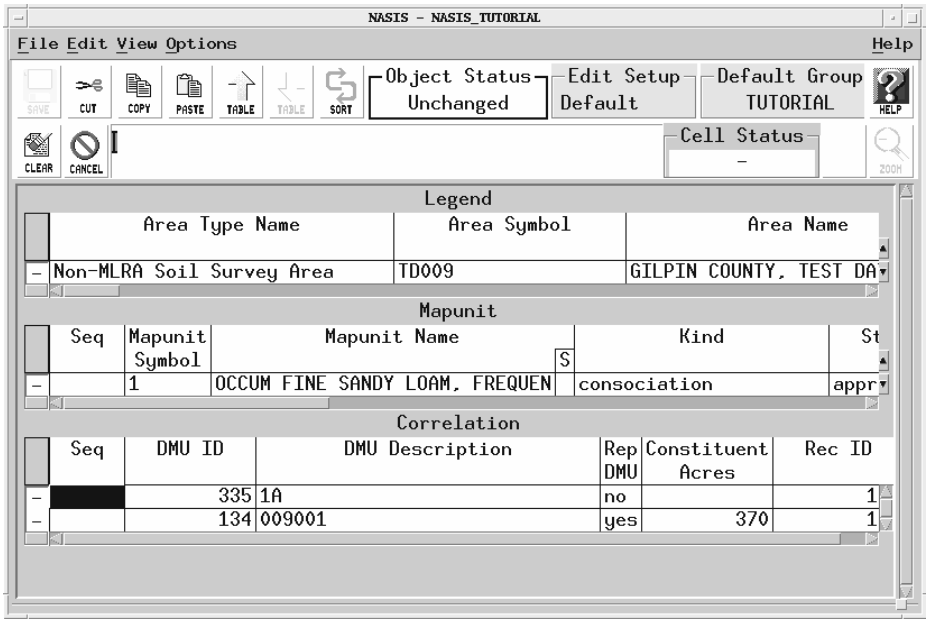
1. On the **File** menu, select **Export**, and then choose **FOCS**.

2. Select **Preview Errors and Warnings** on the FOCS Export Manager.
   In the Export Manager dialog, accept the default percent value for Min. percent composition for FOCS component, or enter new value (0-99). Components that have percent composition for FOCS component are valid components for export to the FOCS comp table.
3. Click **Run Export**.



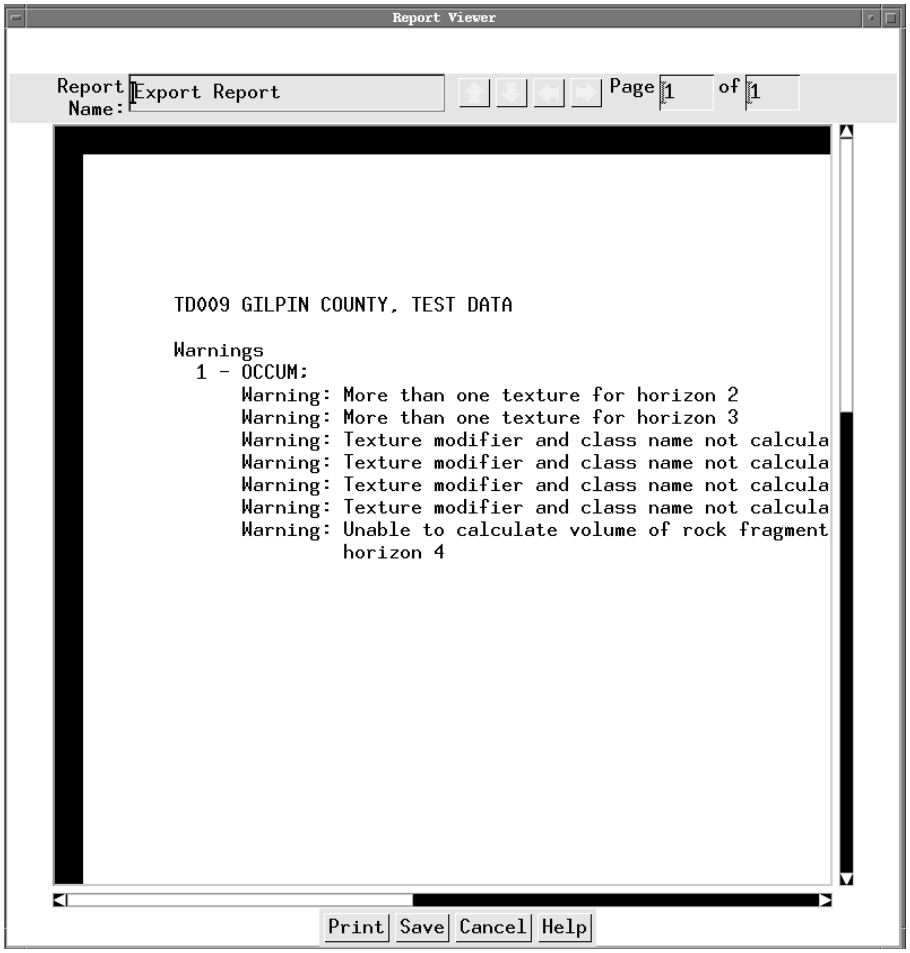
Note: The export program returns an error message, because the Area and Correlation tables were not targeted in the query. Table data must be explicitly targeted in a query or physically brought into the selected set using Down table or Load Related before they are available to the export program.
You might be tempted to rerun the query with all target tables selected. If you did, 180 rows would be added to the Data Mapunit and Correlation tables. An export that size would take an extremely long time to run. Down table allows you to load the data for a single mapunit in your selected set.

4. Click **OK**, then click **Cancel** to close the parameters box and the Export Manager.
5. On the **View** menu, select **Legends**, then click **Mapunit**.
6. Highlight the mapunit symbol 1, then click **Down table**.



Note: Your selected set (for Export purposes) now contains only those data for DMU ID 335 and 134.

7. On the **File** menu, select **Export**, then click **FOCS**.
8. Click **Preview**, then click **Run Export**.
   Note: It may take a few minutes for the program to process the Preview request.



When the export is finished, any errors or warnings display in the report viewer. The display lists all export errors and warnings for the Non-MLRA soil survey legends in your selected set.

Fatal errors require an adjustment to your data before the export process can proceed.

Warnings indicate data conflicts between NASIS and FOCS. However, warnings do not hinder the export process if you let NASIS use predetermined rules, such as, after a maximum of three components are exported to the comp table, the next six components by percentage composition are exported to the *inclusn* table. Each warning has a default solution to the data conflict or you can adjust your data to control exactly what data is exported.

Correcting FOCS Export Errors and Warnings

Instructions for correcting several of the errors can be found in the online help system. Most corrections fall into one of three categories: Selected set problems, format errors, or system errors.

Selected set problems

If you receive an error message indicating that the selected set is incomplete, review the instructions. You need to target a correlation table or select complete information for related tables to get all of the expected mapunit information.

Format errors

Format errors result from incomplete data in a record or inconsistencies between NASIS and FOCS. For example, NASIS does not limit components whereas FOCS does limit the number of components.

If you encounter an error that indicates a formatting problem, consult the online help system. Each of the errors, the probable cause, and the recommended solution are listed in the “References” section under “Export Errors and Warnings.”